



COLONY OF SEYCHELLES

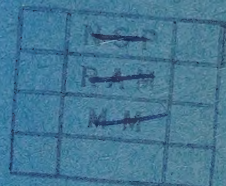
ANNUAL REPORT

OF THE

DEPARTMENT OF AGRICULTURE

FOR THE YEAR

1961



Price Rs. 3/-



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I. — INTRODUCTION

The British Crown Colony of Seychelles has a land area of 100 square miles and consists of 92 islands and islets, 32 of which are granitic and mountainous and lie in 3 neighbouring groups between latitude 4 and 5° South and longitude 55 and 56° East. The 60 other islands are flat and coralline, being either sand-cays or elevated reefs, and, with 2 exceptions, lie in 4 main groups across some 600 miles of sea, in a rough south-westerly direction. Mahé, which is the main island and also the largest granitic island of the Colony, is 17 miles long and up to 7 miles wide and has an area of 55 square miles. The total area of the granitic islands is 87 square miles. As appears from the 1960 Agricultural Census, the Colony's land may be classified as follows :

Arable land	2,482 acres
Land for growing tree-crops or shrubs	30,280 „
Permanent pasture	nil „
Wood of forest land	11,105 „
All other land	18,993 „

Other land consists of boulders, elevated reefs and other surfaces unsuitable for agriculture.

2. The climate of the Seychelles is tropical. The temperature varies little throughout the year, the daily range being 5 to 7°F. March is the hottest month and August the coolest. The islands lie at the northern limit of the South-East Trade Winds, which blow for about 6 months, from the end of April to the beginning of October. During the rest of the year the weather is influenced by the North-East monsoon of the India seas, which swings from the North-East to the North-West South of the Equator. The distribution and the quantity of the rainfall vary greatly from year to year and from island to island, averaging some 90 inches on the highest granitic island and some 15 inches on the most distant atoll. December and January are usually the wettest and August the driest month. The relative humidity is high, usually between 70 and 80.

3. The economy of the Colony is almost entirely based on agriculture. There are 3 main agricultural industries : coconut, cinnamon and vanilla. As revealed by the 1960 Agricultural Census, some 23,000 acres are planted under coconut, some 14,000 acres under cinnamon and some 700 acres under vanilla. The revenue produced by the cinnamon industry is roughly one-third of that of the coconut industry. The revenue derived from the vanilla industry varies greatly from year to year, depending on variable production and prices ; in 1961, it was roughly 4% of that of the copra industry.

4. Some 15,000 acres of Crown Land, about half of which is leased, come under the supervision and administration of the Department of Agriculture. The most distant Crown Land, the Aldabra atoll, is situated 612 miles from Mahe. All the distant Crown Lands are leased,

5. As stated in previous annual reports, the policy of the Department of Agriculture may be summed up as the practice and encouragement of optimum long-term use of the land and its products and other natural resources in the best interests of the population. To obtain this objective and to discharge its functions the Department is organized into 9 divisions, including that of Forestry, employing 61 officers. To advise the Government and the Director of Agriculture on all agricultural matters, there is an Agricultural Board, whose members are appointed by His Excellency the Governor and whose Chairman is the Director of Agriculture.

II. — GENERAL REVIEW

6. Although the months of May, June and July were the driest for many years, the total rainfall was generally much above the average in 1961.

7. The 1961 coconut crop was comparable to the low ones of 1959 and 1960. Copra prices were however markedly lower than in 1960 and considerably lower than in 1959. The Mahé Melittomma Control Scheme, which aims at controlling the *Meli tomma* coconut trunk borer on Mahé and the neighbouring granitic islands was continued in 1961, with very satisfactory results. The Agronomist continued his work to assess the fertilizer requirements of the Seychelles coconut soils. The fertilizer campaign was also continued to supply subsidized fertilizers to coconut planters. The coconut nursery initiated in 1960 started to distribute selected seedlings to the granitic islands in 1961.

8. Although the export of cinnamon leaf oil increased considerably in 1961 and advanced to the high average export level of the ten previous years, prices were generally and markedly lower than in 1960.

9. Export of cinnamon bark in 1961 maintained itself to the high level of 1960. However prices were noticeably lower than in 1960.

10. A medium size vanilla crop was collected in 1961. Prices were however considerably lower than in 1960. Due to unfavourable climatic conditions at flowering time in 1961 a still lower crop may be expected in 1962.

11. As a result of the above mentioned decreases in both production and prices and following a sudden increase in the agricultural workers' minimum wages in 1960, there was a marked tendency for the maintenance of plantations to deteriorate and for the recently initiated development works, by certain progressive planters, to come to a standstill.

12. The Land Settlement Scheme, which aims at creating a contented population of small farmers, to produce food-crops for local consumption as well as export crops, continued satisfactorily in 1961.

13. Both the Mahé Re-afforestation Scheme and the Praslin Upland Conservation Scheme were continued and showed progress in 1961.

14. The first stage of the Clearing of Bracken Fern Scheme, which was started in 1959 and which aims at eradicating the highly inflammable

bracken fern from the forest of Mahé island, was successfully completed in 1961.

15. The main achievements of the Department of Agriculture in 1961 continued to consist in the successful operation of several important Colonial Development and Welfare Schemes. As detailed below, there were ten such schemes in operation in 1961 :

- The Re-afforestation Scheme, started in 1950,
- The Land Settlement Scheme, started in 1957,
- The Agronomy Scheme, started in 1959,
- The Pest Control Scheme, started in 1959,
- The Fertilizer Scheme, started in 1959,
- The Animal Husbandry Scheme, started in 1959,
- The Clearing of Bracken Fern Scheme, started in 1959,
- The Praslin Upland Conservation Scheme, started in 1960,
- The Coconut Nursery Scheme, started in 1960,
- The Melittomma Control Scheme, started in 1960.

Less important, but none-the-less promising and potential activities in 1961 consisted in the initiation of the Extension Service Division of the Department of Agriculture and also in the creation of a creole herd of cattle on the Grand'Anse station of that Department.

16. Changes in the system of appointment of the Board of Agriculture and the formation within the Board of Committees for dealing with certain aspects of the Board's works, which aim at ensuring continuity as well as a more active participation of the Board in the formulation of agricultural policies, were effected in 1961.

17. The Colony and the Department of Agriculture were favoured with the visit of the Deputy-Agricultural Adviser to the Secretary of State for the Colonies in 1961.

III. — WEATHER

18. Total rainfall was generally very much above the average in 1961, 135.20 inches having been recorded in Victoria, compared to an average of 91.34 inches for the last 61 years. The extremes of rainfall recorded at Victoria are 145.06 inches in 1934 and 48.72 inches in 1943. The high rainfall of 1961 followed the markedly deficient rainfalls of 1959 and 1960, when 79.19 inches of rain were recorded in Victoria in 1959 and 79.38 inches in 1960.

19. Rainfall was above the average, more often much above the average, during all the months of 1961, except in May, June, July and December. The figures for May, and June, which are the lowest on record, show that rainfall during these months was only a small fraction of the average.

20. Rainfall data at Victoria and other recording stations and air temperature for Victoria, which have been kindly supplied by the local office of the East African Meteorological Department, are contained in Appendix A.

IV. — THE COCONUT INDUSTRY

21. The total quantity of copra exported from the Colony during 1961 was 4,900 tons, valued at Rs. 3,937,963. Taking into consideration the stocks in store at the Custom Sheds at the end of 1960 and 1961, the production for export in 1961 has been 4,885 tons, valued at Rs. 3,927,028. This low production figure is comparable to those of 1959 and 1960, when productions for export were respectively 4,570 tons and 4,921 tons. As reported in the 1959 and 1960 Annual Reports, the large decrease in production during recent years cannot be attributed only to increased local consumption and to admittedly unfavourable climatic conditions, but also to other important factors such as losses due to the Melittomma coconut trunk borer, widespread neglect of plantations, senility of palms and gradual impoverishment of coconut soils. Copra production for export and actual copra exports for the last five years, as well as their values, are given in Table I of Appendix B.

22. The downward trend in the prices of copra experienced in 1960 continued in 1961. The average F. O. B. value of a ton of copra thus dropped from Rs. 986 in 1960 to Rs. 804 in 1961, or by some 18.4%. F. O. B. prices realised in 1961 were from £54. 19. 0d. to £69. 2. 6d. per ton, compared to £62. 5. 0d. to £82. 10. 0d. per ton in 1960, and to £85. 16. 0d. to £91. 13. 0d. in 1959. The local selling prices ranged from Rs. 642 to Rs. 815 per ton, compared to Rs. 695 to Rs. 1,020 in 1960 and Rs. 924 to Rs. 1,044 in 1959. From the 31st of July the price of copra was stabilized by the payment of a subsidy of up to £5 per ton from the Copra Price Stabilization Fund; as copra did not sell at less than £55 per ton after the 31st of July, this measure resulted in F. O. B. price of copra being stabilized at £60 per ton and the local price being at about Rs. 672 per ton.

23. As previously all the Seychelles copra was sold by the Seychelles Copra Association in monthly or bi-monthly tenders and was exported to India, where the Seychelles F. M. S.* grade copra appears to obtain a premium. The Association's cess remained at 2% and the export duty at 9%.

24. Supplies of coconut oil and poonac (coconut cake) and soap were adequate, although there is a large prospective and unsatisfied local market requirements for coconut cake, the production of the latter being limited by the local market requirements in coconut oil. The production in Victoria of a better quality of filtered coconut oil, made from first grade copra, appears to have caused a small but noticeable increase in the local consumption of coconut oil, at the expense of imported edible oils. A small coconut coir factory, which produces ropes and mattress fibre for local use, operated also in 1961.

25. The anti-Melittomma campaign was continued on Mahé, Silhouette and on neighbouring islets, using the tar method, which involves the gouging out of the infested necrotic tissues and tarring the exposed surfaces. An anti-Melittomma team remained posted on the previously-treated island of Praslin for re-checks and for localized re-treatments. A very satisfactory progress in the anti-Melittomma campaign was generally obtained. Details about this campaign are contained in Section XII.

* Fair Merchantable Sundried.

26. To encourage coconut planters to manure their coconut palms and to start reversing the decline in the coconut crop, 260 tons of fertilizers were imported by the Government, 214 tons of which were distributed by the Seychelles Copra Association in 1961. These fertilizers were sold at subsidized rates. The element of subsidy was 40% to coconut planters producing less than 25,000 coconuts per annum, 30% to planters producing between 25,000 and 100,000 coconuts per annum and 20% to planters producing more than 100,000 coconuts per annum. Two types of fertilizer mixtures were sold: 15N—15K for the calcareous sandy flats of the granitic islands and for the out-lying coral islands and 10N—20P—10K for the lateritic hill-side soils of the granitic islands, which are apparently deficient in phosphorous. The 214 tons of fertilizers distributed in 1961 went to 77 planters, while 305 tons were distributed to 123 planters in 1960 and 185 tons were distributed to 153 planters in 1959. The decrease in the quantity of fertilizers distributed and in the number of planters to whom they were distributed may be ascribed, among other factors, to the lowering of the purchasing capacity of planters as a whole, especially of small and medium size planters, with the drop in the prices of copra and the rise of the labourers' minimum wages.

27. The coconut nursery which was started with a grant from the Colonial Development and Welfare Funds in 1960 and which is situated on the Grand'Anse Station of Mahé, started to distribute seedlings in 1961. In all 11,627 seedlings were distributed on Mahé, Praslin, La Digue and Frigate islands, but mostly on Mahé, during the months of August to December. The seedlings were sold at the heavily-subsidized price of five cents, including transport, on the understanding that they would be planted under approved conditions, which covered size and depth of planting holes, spacing and pre-manuring. Frequent inspections by the Extension Service Staff of the Department revealed that these conditions were generally adhered to. Although the demand and distribution of seedlings fell below expectations, a satisfactory start can be said to have been made in view of the fact that the selection of coconut seedlings prior to planting had been generally ignored in the past and of appreciative comments of planters on the vigour and healthy appearance of the seedlings.

28. The Agronomist, on the Grand'Anse Station and on private properties, continued his numerous fertilizer trials, the final results of which will not be available for some years. Details about these trials and about other investigations carried out by the Agronomist are contained in Section XI.

29. On certain granitic and coral islands, minor pests such as the Coconut Rhinoceros Beetle *Oryctes monoceros* Ol. and mealy bugs, especially the former, continued to cause concern. The scoliid wasp *Scolia ruficornis* F., which was introduced originally from Zanzibar to parasitize the Rhinoceros Beetle and which had been established on North Island, Silhouette and Praslin, was recovered on Mahé in 1961; although it has also been introduced on La Digue and Poivre islands it has not been recovered yet on them. *Cryptolaemus* lady-birds were introduced from California early in 1961 for the biological control of the Long-tailed Mealy Bug *Pseudoroccus adonidum* L. on Poivre and Darros islands. Although the Lady-bird has not been recovered, latest reports from Poivre and Darros are to the effect that the infestations have greatly diminished.

V. — THE CINNAMON INDUSTRY

30. Of the cinnamon products which are exported from the Seychelles, cinnamon leaf oil and cinnamon bark, the former, which is used mainly for the manufacture of synthetic vanillin, continued to suffer from the competition of lignin-vanillin, which is a cheap by-product of the wood pulp industry. Cinnamon bark, on the other hand, on account of shortage of supplies of cassia bark from the East, especially from China and Indo-China, continued to fetch remunerative prices.

31. The quantity of cinnamon leaf oil exported in 1961 was 83½ tons, valued at Rs. 689,657, compared to 60½ tons, valued at Rs. 610,085, in 1960. As will be seen, the average value of the ton of cinnamon leaf oil dropped by 17.5% from 1960 to 1961. This may be ascribed to competition by lignin-vanillin and to a certain extent by clove leaf oil from Madagascar. The situation was redeemed however by a large increase in the export in 1961, which advanced to the high average annual export of the ten previous years. It is not clear why, with the threat of the competitive lignin-vanillin, cinnamon leaf oil export should increase, as has been the case over a number of years. This may be due to the Seychelles product not being exclusively used any longer for the manufacture of synthetic vanillin, but being also increasingly used in perfumery and as a flavouring additive. Table II of Appendix B gives the quantities and value of cinnamon leaf oil exports during the last five years.

32. The quantity of rough cinnamon bark exported in 1961 was 989 tons, valued at Rs. 760,279, compared to 986½ tons valued at Rs. 821,843, in 1960. There was thus a drop of some 7.7% in the average value of a ton of cinnamon bark from 1960 to 1961. Table III of Appendix B gives the quantities and values of cinnamon bark exports during the last five years.

33. The quantity of cinnamon quills and quillings exported in 1961 was 5½ tons, valued at Rs. 23,303, compared to 9 tons, valued at Rs. 25,760, in 1960. Thus although the average value of these products increased considerably in 1961, the exports decreased by over ½. This is mainly due to the lack of interest shown by Seychellois producers in cinnamon quills and quillings, the production of which demands more care and is relatively less profitable than that of rough cinnamon bark. All exports of Seychelles cinnamon quills and quillings were to the United Kingdom and, to a lesser extent, to Switzerland. Efforts to introduce the Seychelles products on the South American market, where Ceylon exports the larger part of its annual production of some 2,000 tons of fine-grade cinnamon bark, have been unsuccessful so far.

34. A report from the Tropical Products Institute on a sample of cinnamon quills manufactured from bark of introduced Ceylon cinnamon stated that, due to a higher essential oil content, this sample had a stronger flavour than Seychelles quills and was therefore superior. It might therefore be possible to grow in the Seychelles an improved strain of cinnamon in order to produce fine-grade cinnamon bark comparable in quality to the reputable Ceylon products.

VI. — THE VANILLA INDUSTRY

35. A medium size vanilla crop was collected in 1961, on account of unfavourable climatic conditions at flowering time in 1960. Thus

4,075 kilograms of vanilla pods were exported, valued at Rs. 145,543, compared to 7,575 kilograms, valued at Rs. 539,481, in 1960. Owing to unfavourable climatic conditions in 1961, when flowering was inhibited by early and prolonged rainfall, a smaller crop still should be obtainable in 1962. Table V of Appendix B gives the quantities and values of vanilla exports during the last five years.

36 Further decreases in the price of vanilla were experienced in 1961. Thus the average C. I. F. value of a kilogramme of vanilla dropped from Rs. 71.22 in 1960 to Rs. 35.71 in 1961, or by nearly 50%. This is attributable to competition from Madagascar vanilla, whose production has recovered from cyclonic effects and is once more at a very high level.

37. A report from the Tropical Products Institute, received in 1961, was to the effect that although the grading of Seychelles vanilla is adequate, the quality of that vanilla, which is often received in a mouldy state in the United Kingdom, is far from satisfactory. In view of this consideration is being given to instituting a control of the quality of Seychelles vanilla prior to export.

38. In October 1961 the ordinance governing the Sales of Produce was amended in order that the marking of vanilla pods by producers, prior to disposal, should no longer be compulsory, as producers submitted that they were unable to ensure that all their vanilla pods were marked. The compulsory marking of vanilla pods had been instituted originally in order to protect producers from thefts.

39. The Department of Agriculture continued to supply vanilla cuttings free of charge to vanilla planters during 1961. Although demands were less than in 1960 and preceding years, numerous cuttings were distributed.

40. No serious outbreaks of anthracnose were reported in 1961.

VII. — THE PATCHOULI INDUSTRY

41. The patchouli products which are exported from the Seychelles are patchouli oil and dry patchouli leaf. Patchouli oil is used mainly in perfumery as a fixative for heavy type of perfumes like Ambre, Chypre and Fougere.

42. The Seychelles patchouli oil has to compete on the essential oil market with Singapore patchouli, which is produced mainly in Malaya. Limited demands and low prices are responsible for the decline of that once remunerative peasant industry. Table VI of Appendix B gives the quantities and values of patchouli oil and leaf exports during the last five years.

VIII. — OTHER INDUSTRIES

43. The other industries of the Seychelles may be divided into five groups: agricultural and forestry, livestock, marine, mineral and curios.

(a) Agriculture and Forestry

44. Apart from coconut, cinnamon, vanilla and patchouli, the Seychelles also export various other minor crops such as cloves, nutmegs,

coco-de-mer (*Lodoicea*) nuts, eucalyptus oils, etc. Other minor crops, produced only for local consumption, consist of coffee, tobacco, bananas, breadfruit, sugar cane and bacca (which is a beer made of fermented sugar cane juice), coconut toddy and the usual range of tropical, sub-tropical and, to a smaller extent, temperate climate food-crops.

45. No timber is imported into the Seychelles, the local requirements being obtained from the forests or stands of the islands. As in previous years, the Forestry Division of the Department of Agriculture supplied almost the total requirements of the Public Works Department for its building programme. The Colony's requirements in wood-fuel, which is the main fuel used for cooking and, to a lesser extent, for operating essential oil distilleries, are also produced locally.

(b) Livestock

46. There is little demand for livestock produce and as a result few animals are kept. This is attributable to the availability of fish and to the very low purchasing power of the great majority of the population. The Department of Agriculture is the largest producer of milk and livestock, its Union Vale dairy, on Mahé island, producing some 300,000 pints of milk every year, mainly for the supply of the township of Victoria, and selling its livestock to breeders at auction sales. Further information on the livestock industry is contained in Section IX.

(c) Fisheries and Sundry Marine Products

47. As detailed in Table VII of Appendix B, the quantity of salt fish, including shark and shark fins, exported in 1961 is the lowest for many years. As before the exports were to Tanganyika, Ghana and Ceylon. Although there is a ready market in East Africa for salted shark, that for salted fish is limited.

48. Green turtles, which are mostly obtained from the distant Aldabra atoll and whose meat is relished by Seychellois, were as usual on sale at Victoria. There is a small but remunerative trade in calipee and calipash, which are made from the cartilage joining the carapace of the Green Turtle to its plastron and which are exported to Hong-Kong for soup-making. The recorded export of calipee and calipash in 1961 was 4,399 kilogrammes, valued at Rs. 108,856, compared to 3,208 kilogrammes in 1960, valued at Rs. 51,448.

49. As in previous years, tortoise shell, which is obtained from the Hawksbill Turtle, was not in great demand in 1961. This industry suffers from competition with plastic materials. The quantity of tortoise shell exported in 1961 was 1,243 kilogrammes, valued at Rs. 13,149, compared to 905 kilogrammes, valued at Rs. 9,483, in 1960.

50. Overseas demand for Turbo, oyster and other sea shells continued in 1961, 13.4 tons, valued at Rs. 31,025, having been exported, compared to 10.8 tons, valued at Rs. 18,949, in 1960.

51. As in previous years there was also a small demand for trepangs, which are made from beche-de-mer and which constitute a Chinese delicacy. The quantity exported was 2,037 kilogrammes, valued at Rs. 7,979.

52. The collection for local consumption of nestlings of Wedgetails, Shearwaters and the eggs of the Sooty Tern and Common Noddy continued in 1961. Appendix C gives the declared landings of eggs from the egg-islands.

(d) **Minerals**

53. Minerals exported from the Seychelles consist of bird guano and of related phosphatic coral rock, which is ground prior to export. Some 7,576 tons of guano, valued at Rs. 338,394, were exported in 1961, compared to 7,100 tons, valued at Rs. 284,000, in 1960. This guano was quarried on the leased Crown island of St. Pierre.

(e) **Curios and Zoological Specimens**

54. A small curio industry exists in the Colony, which produces articles made up of tortoise-shell, sea-shells and palm and vetivert leaf for the tourist trade. Another small industry is that of sailing boats, which are made with the best of the local timber. There is a Home Industries in Victoria which is run by a committee of ladies and where curios are sold to tourists and visitors from passing ships.

55. The Aldabra atoll is practically the only place in the world where the giant land tortoise exists in a wild state, as it is reported to be disappearing fast from the Galapagos islands, the only other place where it may still be found wild. The export of a limited number of this reptile is therefore licensed every year. In 1961 55 giant tortoises were exported to zoological gardens and scientific societies.

IX. — LIVESTOCK

56. The Department of Agriculture, which is the largest producer of milk and livestock in the Seychelles, runs the Union Vale dairy and a Veterinary and Quarantine station, near Victoria on Mahé, a Livestock Improvement Centre on the Grand'Anse station, situated on the west coast of Mahé, and keeps stock on various other stations and sub-stations, including stud bulls. As in past years, the milk produced at the Union Vale dairy was supplied to the township of Victoria and to Government Institutions, while the surplus livestock was sold to competent breeders and to butchers at regular auction sales.

(a) **Animal Husbandry**

57. Cattle, donkeys, pigs, goats, ducks, guinea-fowl and a few turkeys and geese are kept in the Colony, but the numbers are small. The livestock produced by the Department of Agriculture, consisting of Sindhi-Friesian cross cattle, Berkshire pigs and Rhode Island Red poultry, is well appreciated by breeders. As already reported in the 1960 Annual Report, the 1960 Agricultural Census had revealed that there had been a marked decrease in the adult cattle population of the colony during the ten previous years. There is however a tendency for an improvement in this situation, as planters, especially coconut planters, are developing an interest in the keeping of cattle on their plantations, to produce manure and subsidiary milk and meat products. This may

be attributed to the Department's campaign in favour of the C. & C. (Coconut and Cattle) concept and to popularize the use of mineral supplements, which has made possible the rearing of cattle on places, such as the out-lying coral islands, where due to mineral deficiencies cattle could not be kept before.

58. Up to 1959 the cattle breeding policy of the Department of Agriculture was to cross Friesian and Sindhi cattle to produce cross-bred animals with good milch characters, suited to the tropical conditions prevailing in the Colony. This policy has met with only limited success, as the half bred Friesian-Sindhi crosses, although looking well, have been rather disappointing from the point of view of milk production, while the three-quarter bred Friesian-Sindhi crosses have not been able to thrive. In 1960 a herd of creole cattle, consisting of local creoles and imported creoles from Mauritius, was started on the Grand'Anse station of the west coast of Mahé. The object is eventually to replace the imported breeds and their crosses by creoles which, although a mixed type containing blood of various French breeds imported originally and of Zebu blood, are acclimatized and are also adapted to the local low nutritional plane and system of limited management. In the meantime the production of cross-breds animals is continuing at the Union Vale dairy, for milk production and for distribution to breeders. The crossing of Jersey and Sindhi cattle has also been undertaken on the Grand'Anse station in 1961, as a stand-by in case the creoles are not successful. However as the latter are promising, it should be possible, in a few years' time, to dispose of all Friesian, Sindhi and Jersey cattle and of their crosses.

59. Among the livestock which found favour with breeders in 1961 was the progeny of Berkshire pigs originally imported from Mauritius.

60. Following the satisfactory results obtained by the owner of the out-lying coral island of Farquhar with mineral supplements, which were reported in the 1960 Annual Report, the owners of certain other coral islands are now trying to rear cattle on their islands. Should these trials be successful, not only would milk and meat be available on the islands, but the latter might also be able to supply part of the meat requirements of Mahé.

61. The Union Vale dairy functioned satisfactorily in 1961, supplying pure, clean milk to the population of Victoria and to Government institutions. The herd, which consists of Friesians and Sindhi-Friesian crosses, was generally very healthy. An average of 65 cows were in milk at Union Vale in 1961 and yielded an average of 4,553 pints per animal. Out of the 295,928 pints of milk produced at Union Vale in 1961, 240,004 pints were supplied to Government institutions and to the public and 55,680 pints were fed to young calves. All the milk was strained, cooled and bottled before delivery. The milkers and other dairy personnel were medically examined at regular periods. Two silage pits were filled with elephant grass. As usual the product was palatable and was of great help during the South-East monsoon.

62. Small quantities of cream and ghee were produced on the Grand'Anse station during 1961 and were sold. In order to use surplus milk at Grand'Anse all weaned young stock from Union Vale were transferred to Grand'Anse in the course of the year.

63. The control of the slaughter of cattle, which had been discontinued in 1954, was resumed in October 1961, in an endeavour to increase the cattle population of the Colony. Slaughter permits are as a rule not issued in respect of young and healthy heifers and cows.

64. As in previous years stud bulls, consisting of Sindhi and imported creoles, were stationed on various stations and sub-stations.

65. As in previous years also, diluted solutions of toxaphene for the control of buffalo fly, mineral supplements, dairy disinfectants and other sundries were sold at the Veterinary station of Union Vale.

(b) Veterinary Work

66. No epidemics occurred in 1961.

67. All the Government cattle and some 100 heads of private cattle were tuberculin-tested in 1961. All the tests were negative.

68. The charge for spaying bitches was waived as from the 1s June, 1961, in order to try to limit the dog population of the Colony.

69. Fowl vaccine was on sale at the station at Rs. 2.50 per batch of 25 doses.

70. The Department of Agriculture continued to operate its small veterinary clinic at Union Vale every day, from 9 a.m. to noon, charging nominal fees or giving free treatment to animals whose owners were certified as being unable to pay. In addition to minor dressings, the following treatments or operations were carried out in 1961.

Clinical Examinations	293
Burdizzo Castrations	15
Open method castrations	22
Caponisations	3
Ovariectomy (cats and dogs)	21
Other minor operations	14
Faecal examinations	10
Smears	8

(c) Quarantine Station

71. The quarantine stations at Union Vale and Long Island continued to be operated. The animals quarantined consisted of one bull, two cats, one parrot and four canaries.

72. Health certificates were issued in respect of one dog and 61 land tortoises which were intended for export.

X. — INVESTIGATIONS AND TRIALS

(a) Research Station

73. It was not possible to establish the proposed Research Station at Grand'Anse, on the west coast of Mahé, in 1961; it is hoped to be

able to do so in future with a grant from the Colonial Development and Welfare Funds. Investigations and trials have however continued at Grand'Anse under the Agronomist, whose office, laboratory and glass-house are situated there. Apart from investigations and trial works, the Agronomist was also responsible, at Grand'Anse, for the coconut nursery, the livestock and the general management of the farm. As in 1960 the main concern of the Agronomist, both at Grand'Anse and on private land, was however coconuts.

(i) *Coconut*

74. The trial in growing cinnamon between coconut palms, as hedges along the contour, which was started with little success in 1960, on coconut Block A of Cimetiere, met again with limited success in 1961, as there are still many gaps to fill in the cinnamon hedges. Complete fertilizers, this time the 10:20:10 mixture instead of the 6:26:6 mixture applied in 1960, were applied in January and February and caused a definite improvement in yields.

75. For Coconut Block B of Cimetiere, an application of 10:20:10 fertilizer mixture was effected in February, 1961, following the 6:26:6 mixture application of 1960. The change in fertilizer mixture was decided as it was evident that a more balanced dressing of plant nutrients was desirable. Combined data of these two Cimetiere Blocks showed an overall nut increase of 11.1% on 1960, while the unfertilized rest of the estate showed an overall nut decrease of 14.1%. It would appear therefore that the use of these fertilizer mixtures has been most beneficial.

76. The 2^3 factorial N. P. K. experiment on young coconut palms on Plateau Longue, which had been started in 1960, was continued. A second fertilizer application was made in September, 1961. A considerable amount of data has been accumulated on the growth of these experimental palms. There is however little evidence of the effect of the fertilizers yet. This may be attributed to the considerable difference in the palm size at the beginning of the experiment and the remarkable palm growth which resulted from the elimination of the tall old palms under which the young palms were growing and which, as described in the 1960 Annual Report, were felled. Fertilizer results can however be expected in 1962. The surge of growth of the young palms has however given an excellent demonstration of the desirability of clear felling before, or shortly after, planting coconut seedlings.

77. On Plateau Coton, which had been down to grass for a number of years and which had been grazed by cattle sporadically, $2\frac{1}{2}$ acres have been replanted with 154 coconut seedlings on an experimental basis, using 14 different methods in 11 replications. The object of this experiment is to determine the best planting method on the calcareous "plateau" coastal flats of the granitic islands. Planting was carried out on the 2nd February, 1961, the holes having been prepared well in advance. An application of the 15:0:15 fertilizer mixture was made soon after planting at the rate of 1 lb. per seedling. This application will be increased by 1 lb. each year, up to a maximum of 5 lbs., the recommended application for an adult palm. Growth measurements were made in October. Little result can be expected yet from the fertilizer applications.

78. The coconut nursery, which is operated with a Colonial Development and Welfare Fund grant, came into full operation in 1961. Methods of planting and management continued as described in the 1960 Annual Report. The Extension Service Division of the Department was responsible for both the selection of seednuts and the distribution of seedlings; the selection of the latter, however, continued to be supervised by the Agronomist. The greater part of the seednuts planted in the nursery during 1961 were collected on high yielding areas from Forêt Noire and Grand'Anse Crown Lands. The rate of planting was reduced in April, in order to cater for demands. A few seedlings were sold early in the year, at an age of about 7 months, but the demand was negligible until the coming of the wet season in August. Since then a large number, totalling nearly 12,000, have been sold mainly to planters on Mahé, but also to planters on other granitic islands. Demand has been very satisfactory, although it is hoped that it will grow.

Details of the seedlings production and sale are as follows:

	1960	1961
Nuts and Seedlings in nursery on 1st January	—	29,067
Nuts purchased	41,795	13,226
Nuts rejected before planting	10,911	—
Nuts planted	30,884	13,226
Nuts and seedlings rejected from nursery	1,817	2,019
Seedlings sold	—	11,627
Seedlings in nursery on 31st December	29,067	28,647

(ii) *Miscellaneous Crops*

79. The Ceylon cinnamon seedlings introduced in 1959, which had made a rather slow start, recovered and were flourishing in 1961. A sample of quills manufactured with bark from one of the seedlings was submitted to the Tropical Products Institute for examination at the end of 1960. A report received in 1961 was to the effect that the essential oil content of that sample was much higher than that of the bark of Seychelles cinnamon and even higher than that of Ceylon grown cinnamon. It would appear therefore that the weakness in the flavour of the Seychelles cinnamon bark is probably due to varietal differences, not to climatic or soil conditions. It should therefore be possible to grow in the Seychelles, where cinnamon thrives, an improved strain of cinnamon for the production of fine-grade barks which could compete with the reputable Ceylon product.

80. The small hill-side plot of Robusta coffee was maintained. Heavy mulching was effected. The Herbe oignon† weed continued however to be a problem. At the end of the dry season a very thorough pruning was carried out, on a three stem basis, as the bushes were becoming badly overgrown and were yielding small berries.

81. The coffee nursery was transferred from the Grand'Anse Station to the Souvenir Nursery Farm in 1961, from which seedlings were distributed by the Extension Service Division.

†Cyperus rotundus

82. Elephant grass (*Pennisetum sp.*) continued to be the main fodder produced on the station. A programme of manuring, cultivating, and replanting where necessary, was carried out in order to increase production in 1962.

83. A few cuttings of Pangola grass† were received in the middle of 1961 and were propagated. Pangola appears to thrive and to grow rapidly under Seychelles conditions. An area of Plateau Coton has been replanted to this grass for evaluating under grazing.

84. Another promising feed crop is Sword Bean§. A quarter acre plot of damp "plateau" has been bearing heavily for nearly six months. Seeds from this plot were planted on highly manured terraced lateritic hill-sides, where the plants thrive d.

85. There is no experimental vanilla plot at Grand'Anse yet. An area of wide bench-terraces has been prepared however, at Litchi, and provided with vanilla supports. It is hoped to plant vanilla vines early in 1962. One of the objects of the proposed experiment is to compare the various species of support plants in use locally. Various other experimental treatments have been proposed, including shade density, mulching, etc. An earth dam has been constructed higher up the valley to enable the experimental plot to be irrigated if necessary.

86. About half an acre of damp "plateau" land was used to yield a comparison trial of local and Malayan patchouli strains. Both are thriving and the first pluckings of leaf are due early in 1962.

87. Yields from the late 1960 plantings of ground-nuts were excellent, there being little difference between the varieties, although the foliage growth of Natal Common was very luxuriant. The yields were as follows:

Mwitnude	—	2880 lbs. per acre, dried in shell
Natal Common	—	2997 „ „ „ „ „ „

(iii) *Livestock*

88. The only livestock kept at Grand'Anse are cattle. The policy is to up-grade a creole herd, consisting of local creoles purchased in 1960 and of imported creoles from Mauritius. The decision to breed creoles, which is a mixed type containing blood from French breeds imported into the Colony in the past as well as Zebu blood, instead of the previously imported Friesian and Sindhi breeds, was taken on account of the limited success which had been obtained with the Friesian-Sindhi crosses. Creoles, being already acclimatized and adapted to the local low nutrition plane and limited system of management, should prove more successful. The results obtained so far are promising. As a stand-by, in case the creoles are a failure, the crossing of the Sindhi cows already existing on the station with a Jersey bull has been undertaken. However it is expected to be able to dispose of all Friesian, Sindhi and Jersey cattle in a few years' time and to concentrate on the breeding of creole cattle only.

† *Digitaria decumbens*

§ *Caravalia ensiformis*

89. Following the appointment as the Station Livestock Supervisor, at the end of January, 1961, of a young Seychellois officer who had been trained at the Mikolongwe Training Centre of the Department of Veterinary Services and Animal Husbandry of the Nyasaland Government, the management of the Grand'Anse herds improved considerably, with very satisfactory results.

(iv) *Laboratory*

90. Laboratory work in 1961 has included the analysis of soil samples of outer islands and of Mahé, a soil survey of Mahé and the evolution of a technique of foliar diagnosis for the coconut palms.

91. The analysis of the coral out-lying island soils has revealed that the Ph of these soils is nearly always above 7, except in guaniferous layers, which are usually slightly acid. Both the organic matter and nitrogen contents of these soils have been found to be low, (though not excessively so,) except in shallow pockets of guano which overlie cemented sandstone, where there is a very shallow hydromorphic soil and where the organic matter content can reach up to 8%. The phosphorous content of these soils has been found to be most varied, being less than 0.1% in pure calcareous sands, but reaching up to 35% in guano and phosphatic sandstone.

92. In order to discover the reasons for a number of unexpected results in field fertilizer experiments on coconut, the analysis of parts of the coconut palms was undertaken. This involved a considerable amount of preliminary work on analytical methods and the discovery of the suitable parts of the palm to analyse. From this work it was found that the best indication of palm nutrient status could be obtained by the analysis of a leaflet of the first fully opened leaf. Results obtained so far tend to indicate that nitrogen deficiency is extremely common in coconut on Mahé.

(v) *Glasshouse*

93. Following a number of simple pot experiments with Grand'Anse soils, it was found that grasses form generally the most satisfactory indicator plants, although for certain purposes tomatoes are better. The use of tomato is complicated however by the presence of nematodes and "wilt" pathogens in the soil. Pot technique has now been standardized, using Pangola grass as indicator.

94. Pot experiments have revealed, so far, that nitrogen and phosphorous are deficient in all soils, often extremely so. In the red earths these were the only deficiencies, although in certain cases, in using beans as an indicator, a positive response was obtained with dressings of sodium molybdate. In the calcareous "plateau" soils, however, marked responses were also obtained with the application of iron and manganese, in addition to the response to nitrogen and phosphorous. In extremely infertile soil, of low organic matter content, responses to borax applications were also remarkable.

(b) Other Investigations and Trials

(i) Soil Surveys

95. The soil survey of the outer coral islands, although completed, has not been published yet. A report will be published as soon as printed maps will be available.

96. The soil survey of the central granitic islands has also been started. Some 10 square miles, in the north of Mahé, have been surveyed so far. The survey is hampered by the extremely difficult terrain and would be almost impossible without the use of aerial photographs. Field mapping has been carried out at the photographic scale of about 1: 20,000. A vegetation survey is also being effected at the same time as the soils are mapped.

(ii) Coconut Fertilizer Experiments

97. Apart from fertilizer experiments and trials carried out on the Research Station, the Agronomist has also undertaken numerous fertilizer experiments on coconut both on the central granitic island and on the outer coral islands. As stated in the 1960 Annual Report, 40 such experiments have been started in the Central island of Mahé and La Digue and 122 on the various outer coral islands. No true yield records are kept from any of these trials, but periodical nut counts are made on the palms. In the course of these counts nuts smaller than fist size are not counted, as many of these are liable to be shed. In all these experiments the palms have received their second annual fertilizer dressing.

98. So far no significant results have been obtained from the experiments on the central islands. Trends tend to indicate, however, that the application of 1Kg. of muriate of potash and 2 Kgs. of super phosphate to the palms of Mahé "plateaux" should give an increase of some 12 nuts two years after applying the fertilizers.

99. The experiments on the outer coral islands have also produced no significant responses so far, except in the case of Denis island, where both NK and NPK applications have given a significant higher yield than the control at 5% level. It is expected that similar results will also be obtained on other outer islands in one or two years' time.

XI. — EXTENSION WORK AND SUNDRY SERVICES

(a) Extension Work

100. It was possible to initiate an Extension Service in the Department in January, 1961. Although the Service is sorely understaffed some very useful contacts with planters were made. With a grant from the Colonial Development and Welfare Funds it is hoped, eventually, greatly to extend the activities of the Extension Service and to create various sub-stations to be staffed by Junior officers in constant contact with the planters in their respective districts.

101. The response of planters to the establishment of this service has been very encouraging and the staff of the Extension Service

Division, consisting of a professional Agricultural Officer and of an experienced Field Officer, was frequently called to offer advice on a number of agricultural problems. Besides extension proper, there were also other demands on the time of the Extension Service staff, such as land valuations, general advisory work and the administration and supervision of the control of the coconut trunk borer *Melittomma insulare* Fairm. Details about the campaign against this unique coconut pest are contained in Section XII.

102. Perhaps the most important activity in the field of extension in 1961 has been the distribution of selected coconut seedlings for the re-habilitation of superannuated plantations and small-holdings. During the course of the year 11,627 seedlings were distributed from the Grand'Anse nursery to planters, small and large, at the nominal price of 5 cents each. Visits were made to the planters who acquired the seedlings to discuss the techniques of planting as well as other aspects of coconut husbandry. In the course of these visits the increasing need for replanting the enormous acreages of senile palms was stressed and in several cases help was given in lining out areas for replanting.

103. Other noteworthy activities by the staff of the Extension Service Division included visits to vanilla and coffee planters, to whom advice was given on the various problems associated with the cultivation of these crops.

104. In order to ensure continuity in the extension programme, a register of planters with whom contact has been made and upon whom efforts would be concentrated has been compiled. Various systems of registration were considered. It was finally decided that a plain card should be used. The face of the card shows the planter's name and address, as well as technical details, such as soil type, particular interests and lists of any purchases of planting material from the Department of Agriculture. The back of the card is a diary of visits made by the Extension Service staff, with brief notes on progress made.

105. As it was obvious from the outset that it would be impossible, with the limited staff available, to concentrate attention on too many planters the number of registrations was limited in the first year to those farmers who showed some keenness and sincerity in their intentions. The number of planters registered so far is 54. This policy of giving individual attention, with the limited staff available, to a few selected farmers has proved to be the right one, as the progress they have made is sufficient to justify the intensive effort given to them.

106. Another noteworthy activity in the sphere of extension has been the publication, from July, 1961, of a bilingual monthly Agricultural Newsletter. The aim of this publication, which is mimeographed and which, apart from current agricultural news from the local Department of Agriculture and from elsewhere, contains in each issue at least an original article as well a review article, is to act as a two-way flow of knowledge and experience between the Department and the planting community. That this aim has been achieved is witnessed by the warm welcome which the Newsletter has obtained generally and by the fact that half of the original articles published in 1961 were contributed by planters.

(b) Sundry Services

107. The Field Instruction Course for boys of primary school leaving age, which was started on a vacant Land Settlement plot in 1959, continued. In 1961, however, a field instruction course was also given, on the same plot, to pupils of the Anse Boileau Technical Modern School. It is proposed to have such instruction courses on all the Extension Service sub-stations in due course. The six boys who were trained on the Anse Boileau Field Instruction Course all received apprentices' Wages and were allowed, as well as the pupils of the Modern School, to take home all the crops grown by them. As in 1959 and 1960, crops grown and demonstrated on the plot consisted of vegetables, root-crops and fruits. A Field Day which was held on the Anse Boileau Field Instruction Course Plot in August, 1961, during the Commonwealth Technical Week, enabled the agricultural apprentices and the pupils of the Anse Boileau Modern School to display their crops and to demonstrate their newly-acquired techniques.

108. In 1961 the small Souvenir Crown Land, which is also used as a station for dry cattle, was converted into a plant nursery, to supply planting material to members of the public as well as to settlers of the Land Settlement Scheme. Plants supplied consisted of selected Robusta coffee seedlings, Greater Yam cuttings and rooted patchouli cuttings, both of the Seychelles and Malayan varieties. Steps have also been taken to produce Citrus grafts from Souvenir in the course of 1962. As there is no private nursery-man in the Seychelles, this nursery serves a useful purpose.

109. Apart from ornamentals, which as usual were supplied from the Victoria Botanic Gardens, planting material supplied to planters and to other members of the public from Crown Lands, in 1961, included vanilla cuttings, aerial layerings of lime and mango grafts. It is intended to extend this activity of the Department in 1962 in order to cater for growing demands.

110. Apart from the Monthly Agricultural Newsletter, officers of the Department of Agriculture continued, in 1961, to make frequent contributions to the Government Seychelles Bulletin and to the local press on agricultural, animal husbandry and forestry matters.

111. In 1961, as in previous years, the Department continued to render numerous sundry services to planters, the public at large and other Government Departments, in providing, supplying or issuing:

- (a) Veterinary treatment to sick animals and sales of veterinary drugs,
- (b) Quarantine facilities for imported animals,
- (c) Export certificates for animals,
- (d) Cattle, poultry and pigs for sale for breeding or slaughter,
- (e) Imported Italian queen bees for distribution to local bee-keepers,
- (f) Milk for sale to Victoria customers and milk and other produce for Government institutions,
- (g) Tested vegetable seeds for sale at non-profit prices,

- (h) Planting material, for sale at nominal prices or issues free of charge,
- (i) Imported fertilizers and pesticides for sale at non-profit prices,
- (j) Laboratory analysis or testing of essential oils and other produce prior to export,
- (k) Inspection of copra, cinnamon bark and salt fish, at the Custom Shed, prior to export,
- (l) Inspection of plant imports and inspection and certification of plant exports,
- (m) Valuation of land and crop estimates,
- (n) Distillation of essential oils on demand,
- (o) Distribution of beneficial insects,
- (p) Help in fighting forest or bush fires,
- (q) Timber for the Public Works Department, the Port Department and the Technical Centre of the Education Department.

XII. — PEST CONTROL

(a) **Melittomma Borer**

112. The campaign against the lymexyloid beetle, *Melittomma insulare* Fairm, a serious pest of coconuts in the Seychelles, was continued on Mahé and neighbouring granitic islands. The method of control consists of excising all necrotic wood from the boles of infested coconut trunks and following this by a liberal application of a formulation of coal tar creosote and coal tar.

113. This campaign financed from Colonial Development and Welfare Funds is now in its second year of operation and by the end of December a total of 300,872 palms had been examined. The infestation rate has been found to vary between 65 and 90 per cent, the higher rate usually being encountered on hillsides and in coastal marshes. Despite the high rate of infestation it has been possible to maintain the rate of losses of palms falling during or shortly after treatment at 2%.

114. As the method of treatment envisages a re-examination of all treated palms about a year later in order to eliminate any residual infestation, a start was made in July 1961 with the re-examination and spot treatment of the properties which had been treated first.

115. Of 15,705 treated palms which were re-examined between July and December 1961, 4,188 palms or 26.7% still contained a residual infestation with an average of five live larvae per infested palm. In addition to the residual infestations in tar-treated palms, nearly five per cent of the palms had a new untreated infestation, arising from eggs or very small larvae which were missed at the time of treatment. All residual and new infestations encountered were treated during the course of re-examination.

116. In Praslin, work has consisted in the re-examination and re-treatment when necessary of all palms which were treated by the tar method during the campaign in 1959 and 1960. This work is considered necessary if *Melittomma* is to be kept under complete control.

117. Results obtained hitherto have shown that a single treatment (gouging with application of tar mixture the following day and a further application of tar mixture a week later) by trained teams, followed up by a further examination and re-treatment of residually infested palms about six months later, can reduce a very serious infestation almost to the point of eradication.

b) Rhinoceros Beetle

118. The coconut Rhinoceros Beetle *Oryctes monoceros* Ol., although of minor importance in the Seychelles, continues to be a noxious pest on two or three islands, where it is an obstacle to replanting.

119. The wasp *Scolia ruficornis* F., which parasitizes the Rhinoceros Beetle and which was introduced originally from Zanzibar, is now established on Mahé, as well as on Praslin, Silhouette and North Island. It has not been possible yet to establish it on La Digue Island, where the Rhinoceros Beetle is particularly noxious. As the wasp population of North Island originated from a very small number of wasps and may therefore be now very much in-bred, wasps from Mahé, which are believed to have originated from another source, were introduced to North Island in the course of 1961.

120. A further batch of large Carabid beetles which prey on young Rhinoceros Beetle larvae, were obtained from Eastern Nigeria early in 1961 and liberated on Praslin, La Digue and Poivre islands.

(c) Mealy-Bugs

121. The heavy infestation of coconuts by the Long-tailed mealy-bug *Pseudococcus adonidum* L., on Poivre and Darros islands, which was reported at the end of 1960, had greatly diminished by the end of 1961. Early in 1961 *Cryptolaemus* lady-birds were introduced from California to prey on these mealy-bugs. As the lady-birds introduced have not been recovered it is unlikely that they have effected a control of the Long-tailed mealy-bug; it may well be therefore that the Long-tailed mealy-bug is controlled by other lady-birds already occurring on the islands, especially *Chilocorus nigritus* F.

122. As in previous years the Department of Agriculture supplied lady-birds from Mahé for release on other islands where localized attacks of mealy-bugs and scale insects had been reported. The species supplied consisted mainly of *Chilocorus nigritus* F. and *Rodolia cardinalis* Muls.

(d) Giant Snails

123. Two species of giant snails occur in the Seychelles: *Achatina fulica* Ferussac and *Achatina panthera* Ferussac, of which the former is much more common and is a serious pest of vegetable gardens on most of the granitic islands. The depredations of these snails are usually limited by the use of baits poisoned with metaldehyde.

124. In the course of 1961, batches of the predacious carnivorous snail *Gonaxis quadrilateris* Preston, which had been introduced from Kenya in 1958 and which is now established on the small Cerf island, where it appears to be controlling the giant snails, were collected on that island and were liberated in several places on Mahé.

125. Another predacious snail, *Englandina rosea* Ferussac, was obtained from Mauritius in 1961 for preying on the giant snails.

XIII. — PRODUCE INSPECTION

126. Produce Inspection is carried out both at the Customs Sheds and in the Routine Laboratory of the Department, which is situated at the Headquarters office, in the Victoria Botanic Gardens.

127. As in previous years the Produce Inspector, stationed at the Customs Sheds in Victoria, was responsible for the inspection and sampling, when necessary, of copra, cinnamon bark, dry patchouli leaf and salt fish. In general the quality of produce deposited for export was good. There were, however, the usual lots of copra and other produce which were rejected for too high a moisture content or improper preparation. Samples of essential oils deposited at the Custom Sheds for export were, as usual, collected for examination in the Routine Laboratory.

128. The Routine Laboratory examines samples of essential oils and patchouli leaf deposited for export. It also examines various other samples for the Excise Department and other Government Departments and the public.

129. The Laboratory dealt with 749 samples of produce for export, fermented liquors and miscellaneous items in 1961, compared to 749 samples in 1960, 690 samples in 1959 and 921 samples in 1958. A large part of the work continued to be provided by the export of cinnamon leaf oil, 360 samples having been taken for examination. Two samples of cinnamon leaf oil were found adulterated with mineral oil (kerosene). The other samples examined consisted mainly of fermented liquors and of milk samples from the Government dairy of Union Vale.

130. Other works done in the laboratory in 1961 included the testing of temperate-climate vegetable seeds imported by the Department of Agriculture prior to and during the period the seeds were on sale to the public.

XIV. — CROWN LAND SUPERVISION AND ADMINISTRATION

131. The area of Crown Land remained unchanged and, as already stated, consisted of some 15,000 acres, about half of which was leased, the remainder being operated from 16 stations or sub-stations, ranging in size from places with one man as guardian to others where a hundred men and women were employed. The leased Crown Lands consisted of distant coral atolls and islands, of Land Settlement Scheme plots and of various house sites on Mahé island. The unleased Crown Lands

consisted of forest areas, which were worked and exploited by the Forestry Division; of land of public utility, such as the sites of police stations, sub-accountants' offices, schools, hospitals, clinics, the leper settlement and quarantine station; the Botanic Gardens, Government House grounds, town gardens, and estates. Of the estates Grand'Anse has been retained for a Research Station, Union Vale is devoted to the Government Dairy, Anse Boileau, Foret Noire and Rose Belle on Mahé, and L'Amitié on Praslin, are being allocated to settlers under the Land Settlement Scheme, while Souvenir has been converted into a plant nursery and Ste. Anne island, part of which is already leased, is to be offered for lease.

132. As in preceding years, the Crown Lands and estates were cleaned and cropped on a regular basis. Fire breaks were maintained around and across the Crown forests. Special attention was given to the up-keep of the Vallée de Mai, in Praslin, the home of the famous Coco-de-mer palm *Lodoicea n. aldivica* Pers. and of a rare endemic bird, the Praslin Black Parrot *Coracopsis barklyi* Newton and to the Botanic Gardens, in Victoria, where there is a large collection of endemic and exotic plants, especially of tropical palms and pandani.

133. Produce from Crown Lands consists of timber, cinnamon products, coconuts and copra, sugar cane, small quantities of fruits and food-crops, and livestock and milk. The timber is supplied to the Public Works Department and other Government departments, such as the Technical Centre of the Education Department and the Port Office. The coconuts are either converted into copra, which is exported, or are sold by tender on a monthly basis or are supplied to cooperative societies. The cinnamon products, consisting of cinnamon leaf and cinnamon bark, are usually cropped by contractors. Cinnamon quills and quillings made at Grand'Anse are either exported or are sold by tender. Sugar cane is supplied to the Victoria Bacca Club for making bacca, which is a local beer made of fermented sugar cane juice. The fruits and food-crops, when available, are supplied to Government institutions. The livestock and milk are sold to the public or are supplied to the Government institutions. Details about agricultural and forestry produce from Crown Lands are contained in Appendices G and H.

XV. — LAND SETTLEMENT

134. As in 1960, the Land Settlement centres were at Anse Boileau, Foret Noire, Les Cannelles and Rose Belle, on Mahé. Although 15 settlements were ready for occupation at L'Amitié, on Praslin, by the end of 1961 none had been occupied: it was expected to allocate plots of land on Praslin early in 1962.

135. There were 99 settlers, occupying 5 to 10 acre plots of land, the great majority 5-acre plots, on Mahé by the end of 1961. The number of the Mahé settlers has thus remained constant during the year under review, the arrivals replacing the unsatisfactory settlers who were evicted or who left. Of the settlement centres, the small Rose Belle Centre made up of 4 settlements, is now fully occupied; the Les Cannelles one has still 5 of its 7 settlements unoccupied; while the Foret Noire and Anse Boileau Centres have respectively 20 and 22 settlements out of their 40 and 95 settlements still unoccupied. These

unoccupied settlements are the less productive of the hill-side ones and are consequently less favoured. It is intended to try to allocate these settlements in the course of 1962, by offering them at a lower rent than the previously uniform monthly Rs. 30 per plot. If and when allocated these plots will be developed by their occupants and should eventually each be able to support a settler. In view of the need to allocate and develop these relatively unproductive settlements, it has not been possible, and is not at present intended, to allocate the coconut plots mentioned in the 1960 Annual Report.

136. As in preceding years the crops grown by the settlers in 1961, except at Rose Belle, where the settlers of this upper hill-side centre can devote themselves to growing vegetables and other food-crops the whole year round, consisted of export crops like coconut, cinnamon, vanilla and patchouli and other cash crops like sugar cane, tobacco and coffee for local consumption, as well as vegetables and other food-crops, especially root-crops. As usual, the settlers grew successfully a variety of European-type vegetables during the South East Monsoon, such as cabbages, carrots, beet-roots, lettuce and cauliflowers. One of the crops which is now grown on a much larger acreage by the settlers is sugar-cane, which they sell to the Victoria Bacca Club for making bacca. Tobacco is another of the cash crops in which the settlers have been especially successful, the plucked tobacco leaves being turned into plugs for sale locally.

137. Although some of the present settlers of the Land Settlement Scheme find it difficult to make ends meet on their relatively poor and or undeveloped plots of land it can be stated that the settlers on the whole have increased and are constantly increasing their production and their revenue. Excluding revenue from food-crops and milk and other livestock products, part of which the settlers consume themselves, the average monthly revenue of the settlers of Anse Boileau, Forêt Noire and Les Canelles, has been worked out at nearly Rs. 100 in the course of 1961, which is three times the amount of rent which they pay. With time, as consolidation work proceeds and as the plots are further developed and are more fully and rationally used, the settlers should therefore be able to live comfortably on the land which they farm.

138. Another heartening development, which has been encouraged by the Department of Agriculture by making it possible for settlers to buy cattle on hire-purchase terms, is the interest which settlers are taking in livestock, especially in cattle. Thus in the course of 1961 23 piglets and 33 heifers were sold to the settlers, who are thus slowly building up a livestock population which should result not only in more livestock products, like milk and meat, being available, but also in increased soil fertility.

139. In the course of the consolidation phase in which the Mabé settlements have now entered, apart from frequent visits by the Land Settlement Officer and his staff, during which advice and directives were lavishly given, the settlers have been encouraged to extend their cultivated acreage by being paid a subsidy, at the rate of Rs 7 per 50 square metres, for bench-terracing their still untterraced hill-sides and by being supplied free of charge, or at nominal prices, a variety of planting materials ranging from seeds to sugar-cane cuttings. This should result in more land being available for cultivation and in a larger variety of crops being grown.

140. While the Anse Boileau Demonstration Plot was discontinued in 1961, the Field Instruction Course Plot provided seeds and other planting materials for settlers and was also used for training agricultural apprentices and pupils of the Anse Boileau (Technical) Modern School. Prior to 1961 only young boys of primary school leaving age were trained in vegetable and food-crop production on the Field Instruction Course Plot. In the course of the year, however, 27 pupils of the Anse Boileau Modern School were also admitted for training in a trial, with considerable success. In due course, when various agricultural sub-stations have been created, it is intended to hold similar field instruction courses on them for the pupils of neighbouring Modern Schools, which should help to fill the gap in agricultural instruction. In August, 1961, during the Commonwealth Technical Training Week, a very successful Field Day was held on the Anse Boileau Field Instruction Course Plot during which Lady Thorp, the wife of the late Governor, distributed medals and prizes to the best apprentices and to the best Modern School pupils,

141. As foreseen in the 1960 Annual Report, the small Souvenir Crown Land has been converted into a Plant Nursery under the supervision of the Land Settlement Officer for supplying planting materials both to settlers of the Land Settlement Scheme and to other members of the planting community. In the course of 1961, yam and patchouli cuttings as well as coffee seedlings were supplied. In due course it is hoped to supply a large variety of planting material, including citrus grafts and other fruit trees from the nursery. As stated elsewhere, this nursery serves a very useful purpose, as there is no private nursery-man in the Colony.

142. A very welcome decision taken by the Government in 1961 was the appointment of the Land Settlement Scheme Rent Board, consisting of officials as well as unofficials. This Board considered numerous applications for rent reduction soon after its appointment and has recommended a general revision of the rents of the less productive hill-side settlements.

143. A Land Settlement Committee of the Agricultural Board was also appointed in 1961, to advise the Board and the Government on land settlement policy. This committee should prove very useful for shaping the future policy of the Scheme.

XVI. — FORESTRY

144. The main forest areas, which consist of some 4,000 acres of the principal catchment areas on the islands of Mahé and Praslin, are Government-owned. With generous grants from the Colonial Development and Welfare Funds these have been largely re-afforested from 1950 onwards. There has been practically no re-afforestation work on private land.

145. The Mahé Re-afforestation Scheme, the Praslin Upland Conservation Scheme and the Clearing of Braken Fern Eradication Scheme continued in 1961.

146. In the course of 1961 105 acres were re-afforested on Mahé. The total acreage so far re-afforested under that scheme is now 2,685

acres. Plantings under the new Praslin Upland Conservation Scheme consisted of 76 acres, at Fond Boffay, on Praslin.

147. Practically all the areas re-afforested in 1961 were steep slopes and exposed ridges which had once been occupied by Bracken Fern. The main species planted was Calice du Pape, which was closely inter-planted with Takamaka. The results have been very encouraging so far, the close planting having necessitated little beating up. In the course of maintenance work 600 acres were weeded, 337 acres were mulched, 103 acres were pruned and 191 acres were thinned.

148. Upland Conservation work continued on Praslin and Curieuse. On Praslin, at Fond Boffay, coco-plum was planted thickly, intermixed with Calice du Pape on the better sites; but on Curieuse, although beating up of blanks and mulching were energetically effected, no further planting was carried out in 1961. Close planting of coco-plum on the exposed and denuded slopes of Fond Boffay was resorted to in 1961, instead of the strip plantings in stabilization trenches described in the 1960 Annual Report, as it has been found that a quicker cover is obtained in this way, and that little or no erosion occurs through the non-disturbance of the soil. It is hoped eventually, when sufficient cover has been obtained with the hardy coco-plum, to be able to intersperse the latter with a hardy tree species like Calice du Pape.

149. Out of the introduced species, the Central American Mahogany and the Cedrellas (*Mexicana* and *odorata*) are the best. The largest Mahogany, which was planted in the Sans Souci forest of Mahé in 1954, is already 55 feet high and 3 feet in girth at breast height, whereas the largest Cedrella, which was also planted in 1954, in the Grand'Anse forest of Mahé, is 60 feet high and measures 3 feet 9 inches in girth at breast height. Another tree worthy of mention is the Lilac: the largest specimen, which had been planted in 1953, was recently felled and yielded boards ranging from 7 inches to 10 inches in width.

150. The trees measured in 1960 in the three 1/10th acre sample plots of the compartmented Sans Souci forest were measured again in 1961, before and after thinning. So far only 3 sample plots have been demarcated. It is hoped, however, that many more areas will be compartmented in 1962 and sample plots demarcated, so that when the whole of the forest with measurable trees will have been compartmented, a near enough figure of its total volume of timber will be obtainable.

151. The Bracken Fern Eradication campaign, which aims at eradicating the highly-inflammable bracken fern from the forest areas of Mahé, progressed very satisfactorily in 1961. In the course of the year 1,284 acres of private land and 586 acres of Crown Land were cleared. The total areas cleared from the beginning of the Scheme, in 1959, is thus 1,481 acres on private land and 1,611 acres on Crown Land. As previously, a subsidy at the rate of Rs. 15 per acre, was paid to the land-owners who effected the clearing work with their own labour force; while clearing work on Crown Lands and on private lands whose owners were unable to undertake the work was carried out by Forestry personnel. Three cuts had been anticipated as necessary for the complete

Bracken Fern	<i>Gleichenia dichotoma</i>
Calice du Pape	<i>Tecoma leucocylon</i>
Takamaka	<i>Calophyllum inophyllum</i>
Coco-plum	<i>Chrysobalanus icaco</i>
Central American Mahogany	<i>Swietenia macrophylla</i>
Lilac	<i>Melia dubia</i>

eradication of fern from the sites on which it was growing. However, the results of the first cut have been so satisfactory that a second cut may not be necessary on many sites, while a third cut is unlikely to be effected at all. Follow-up work on the cleared sites has also been very satisfactory : it is estimated that about 1/3 of the cleared area has been planted under forest trees and a variety of crops, including coconuts, cinnamon, cloves and even bananas and pine-apples, while on the remaining 2/3 which consist largely of steep slopes and ridges, considerable natural regeneration, mainly of cinnamon, is taking place.

152. Although the total rainfall was very much above the average in 1961, very dry conditions prevailed in May, June and July. As a result several fires occurred on Mahé and Praslin during that period. Two of these fires, one on Mahé and one on Praslin, were large ones and burnt several hundred acres. Most of this land was bush-land, consisting mainly of coppiced cinnamon. Although the two large fires encroached on Crown Land little damage was done.

153. In 1961, as in previous years, the Forestry Division continued to exploit forest produce in the Crown Forests and was able to supply the Public Works Department building programme. Forestry personnel were also engaged, in 1961, in the supervision of the cropping, by contractors, of cinnamon products on Crown Lands. Details about Crown Forest produce are contained in Appendix H.

XVII. — MISCELLANEOUS

154. The tragic and untimely deaths of His Excellency the Governor and Commander-in-Chief of the Seychelles, Sir John Thorp C.M.G., M.B.E., and of the Honourable Treasurer and Secretary for Finance, Mr. Maurice Boullé, which occurred by drowning at Grand'Anse, on Mahé, on the 13th of August, 1961, have deprived the Colony of an outstanding Governor as well as of an able Treasurer. Sir John Thorp's keen and personal interest in the agriculture of the Colony, which was witnessed by his attendance, two days before his death, of the Field Day held on the Anse Boileau Field Instruction Course Plot, will always be remembered by the staff of the Department of Agriculture and by the planting community at large.

155. The Colony and the Department of Agriculture received a visit from the Deputy Agricultural Adviser to the Secretary of State for the Colonies, Mr. G. M. Roddan C.M.G., from the 25th February to the 8th March, 1961. Mr. Roddan was the second Agricultural Adviser to have visited the Seychelles, the first one having been Sir Frank Stockdale, who came in 1931. During his short but successful visit, Mr. Roddan toured the two largest granitic islands, Mahé and Praslin, met a number of representative planters and, on the eve of his departure, addressed and met the members of the Agricultural Board, with whom he had a fruitful discussion.

156. Following recommendations made by the Deputy Agricultural Adviser during his visit and by the Agricultural Board itself, certain alterations have been made to the system of appointment of the Board, and advisory committees, to deal with particular aspects of the Board's work, have also been appointed within the Board, in order to ensure continuity of work and to secure a more active participation of the Board in the formulation of agricultural policies. In future the Board, at the end of each year, will designate four of its members for retirement and

for replacement by new members. Three advisory committees were appointed in 1961, to deal with Research, Land Settlement and Forestry. Following these changes, the Board was much more active in 1961 than in the past and, either in committees or at full meetings, studied and made recommendations about a variety of subjects. A committee of the Board was for example engaged, during the month of July, on a preliminary survey of credit in the Seychelles. Seven full Board meetings were held in 1961, at one of which the Deputy Agricultural Adviser addressed the members.

157. A Nature Conservation Board was appointed by His Excellency the Governor in May, 1961, to advise the Government on measures to be taken to protect the Seychelles flora and fauna. This Board is under the Chairmanship of the Director of Agriculture.

158. Following a recommendation of the Forestry Adviser to the Secretary of State for the Colonies, a botanist from the Royal Botanic Gardens of Kew, Mr. C. Jeffrey, arrived in the Seychelles on the 27th October, 1961, to make an extensive collection of specimens of the Seychelles flora, especially that of the granitic islands. During his short tour of the Seychelles, Mr. Jeffrey will also make recommendations for the preservation of that flora, some members of which, it is feared, are on the verge of extinction.

159. Mr. F. Strawbridge, the Forester, left the Colony in May, 1961, on the completion of his 3 year tour of secondment, and has since then reverted to the United Kingdom Forestry Commission, to which he belongs. The Forester has been replaced, since his departure, by the Assistant-Forester, Mr. A. Moulinié.

160. Overseas visitors to the Department of Agriculture and the Botanic Gardens, in 1961, included :

Mr. G. M. Roddan C.M.G.	Deputy Agricultural Adviser to the Secretary of State for the Colonies.
Mr. K. Comorasamy Chetty	Deputy Secretary (Ministry of Food and Agriculture), Central Government of India.
Dr. P. O. Wieh C.B.E.	Director, Mauritius Sugar Industry Research Institute.
Mr. H. D. L. Corby	Director, Grasslands Research Station, Marandellas, Southern Rhodesia.
Mr. R. Lewis	Assistant-Director (Field Services), Veterinary Service, Kenya Colony.
Mr. L. P. Colly	Veterinary Officer, Bechuanaland Protectorate.
Mr. G. Gaskill	Of the editorial staff of Reader's Digest.

13th March, 1962,
Headquarters,
Department of Agriculture,
Victoria, Mahé.

GUY LIONNET,
Director of Agriculture.

APPENDIX A

Total Rainfall and Air Temperature at Victoria.

Months	Rainfall in inches		Average Rainfall for last 61 years	Air Temperature (Fahrenheit) for 1961				
	1961	1960		1959	Mean Maximum	Mean Minimum	Highest Maximum	Lowest Minimum
January	27.60	10.58	19.00	14.98	84	76	87	74
February	19.52	16.65	8.32	10.77	86	77	89	73
March	20.36	5.21	6.57	8.78	87	78	91	74
April	8.22	7.24	7.38	7.48	87	78	91	76
May	0.22	2.68	4.05	6.47	85	79	89	76
June	0.31	2.09	0.81	3.66	83	77	85	75
July	1.05	2.74	0.69	3.21	82	79	84	74
August	11.19	1.29	1.40	2.67	83	77	84	74
September	14.06	0.43	4.59	5.32	83	77	85	74
October	10.98	7.83	4.96	6.24	84	77	86	74
November	12.51	2.73	9.11	8.55	85	76	88	74
December	9.18	14.51	12.41	13.23	85	79	89	74
Total	135.20	73.98	79.19	91.34	—	—	—	—

Total Rainfall at Other Recording Stations in 1961.

Mahé, Mont d'Or.....	158.58	(1,300 feet above sea level)
Mahé, Grand'Anse.....	143.71	(sea level)
Praslin.....	99.31	(sea level)
La Digue.....	104.00	(sea level)

APPENDIX B

TABLE I

Copra Production for Export and Actual Exports 1957 to 1961

Year	Production Metric Tons	Value f. o. b. Rupees	Export Metric Tons	Value f. o. b. Rupees
1957	6,000	5,257,398	5,900	5,176,198
1958	5,605	5,492,451	5,599	5,447,063
1959	4,570	5,452,225	4,406	5,238,346
1960	4,921	4,854,264	4,689	4,768,419
1961	4,885	3,927,028	4,900	3,937,963

TABLE II

Cinnamon Leaf Oil Exports 1957 to 1961.

Year	Quantity in Tons (Long Tons)	Value in Rupees f. o. b.
1957	58	555,313
1958	82	582,026
1959	91	876,239
1960	60 $\frac{3}{4}$	610,085
1961	83 $\frac{1}{4}$	689,657

TABLE III

Cinnamon Bark Exports 1957 to 1961.

Year	Quantity in Tons (Long Tons)	Value in Rupees f. o. b.
1957	596	251,667
1958	1,063	723,662
1959	1,048	799,615
1960	986 $\frac{1}{2}$	821,843
1961	989	760,279

TABLE IV

Exports of Cinnamon Quills and Quillings 1957 to 1961.

Year	Quantity in Tons (Long Tons)	Value in Rupees f. o. b.
1957	8 $\frac{1}{4}$	35,000
1958	5 $\frac{1}{2}$	27,500
1959	3 $\frac{3}{4}$	24,849
1960	9	25,760
1961	5 $\frac{1}{4}$	23,303

TABLE V

Vanilla Exports 1957 to 1961.

Year	Quantity in Kilogrammes	Value in Rupees f. o. b.
1957	4,245	195,182
1958	6,000	423,026
1959	4,510	485,156
1960	7,575	539,481
1961	4,075	145,543

TABLE VI

Patchouli Leaf and Oil Exports 1957 to 1961.

Year	Oil Exports		Leaf Exports	
	Kilogrammes	Rupees f. o. b.	Tons	Rupees f. c. b.
1957	1,200	50,450	7	14,789
1958	103	4,156	10	20,468
1959	252	14,017	12 $\frac{3}{4}$	35,499
1960	435	24,600	11 $\frac{3}{4}$	40,208
1961	237	13,800	11 $\frac{1}{4}$	41,066

TABLE VII

**Exports of Dry-Salted Fish (including Shark and Sharkfins)
1957 to 1961.**

Year	Quantity in Tons (Long Tons)	Value in Rupees f. o. b.
1957	183 $\frac{1}{2}$	169,669
1958	147	133,788
1959	120 $\frac{1}{2}$	93,660
1960	82 $\frac{1}{4}$	78,751
1961	43 $\frac{1}{4}$	38,594

APPENDIX C

Sea-Birds Eggs Collections

The following table gives the declared landings of eggs from egg-islands in 1961 :

<i>Islands</i>	<i>No. of cases</i>
Aride	137
North Cousin	NIL
South Cousin	5
Farquhar	97
Desnoeufs	2493
Frigate	82
Bird	NIL
Recif	22
Eagle	NIL
African Banks	NIL

It can be assumed that each case contained an average of 700 eggs.

APPENDIX D

Staff as at 31st December 1961

HEADQUARTERS

<i>Appointment</i>	<i>Name</i>	<i>Remarks</i>
Director of Agriculture	J. F. G. Lionnet M.B.E., Dip. Agric. (Maur.)	
Inspector of Plantations	A. Gendron	
Probationer Technician	F. Vidot	
Chief Clerk	A. Coopoosamy	
Store-Keeper and Paymaster	L. Ah-Tou	
Paymaster Stations and Sub- Stations	P. Sinon	
Typist	Miss R. Savy	
Typist	Miss L. Ah-Tive	
Messenger	J. Bastille	
Driver	H. Moustache	

EXTENSION SERVICE DIVISION

Agricultural Officer	S. M. Savy B. Sc. Agric. (Glasgow), Dip. Agric. Sci. (Cantab.), D. T. A. (Trin.)	
Field Officer	P. Loustau-Lalanne	
Technician	J. Dookley	On training at the Mauritius College of Agriculture dur- ing the whole year.

RESEARCH DIVISION

Agronomist	C. J. Pigott B. Sc. Hons. Agric. (Read.), Dip. Agric. Sci. (Cantab.), D. T. A. (Trin.)
Livestock Supervisor	R. Albert
Farm Manager	H. Buron
Laboratory-Assistant	F. Frichot
Laboratory-Attendant	T. Marie
Clerk	A. Uzice
Assistant-Clerk	A. Mathurin
Draughtsman	G. Vidot
Coconut Nursery Supervisor	A. Antat
Livestock Assistant	H. Wilcock
Driver	A. Mancienne

VETERINARY DIVISION

Stock Inspector	D. Morgan
Farm and Dairy Manager	P. Chang-Ty-Sing
Livestock Supervisor	R. Baker

PEST CONTROL DIVISION

<i>Appointment</i>	<i>Name</i>	<i>Remarks</i>
Senior Melittomma Assistant	T. Didon	
Melittomma Assistant	J. B. Chang-Thiou	
do	M. Naiken	
do	O. Charles	
do	S. Valentin	
do	H. Gendron	
do	L. Canny	
do	I. Bijoux	
do	A. Chan-Pen-Tive	
do	T. Julius	
do	A. Desaubin	
do	M. Roselie	
do	W. Figaro	
do	U. Onezime	
do	F. Adeline	

PRODUCE INSPECTION DIVISION

Produce Inspector	B. Paton	
Laboratory-Assistant	J. Gontier	
do	S. Accouche	

LAND SETTLEMENT DIVISION

Land Settlement Officer	J. W. Savy	
Technical Officer	R. Dubuisson B.E.M.	
do	J. Barbier	
Technician	Raoul de Lafontaine	
do	J. Pool	
do	B. Tall	
do	Rene de Lafontaine	
Clerk	L. Chetty	

FORESTRY DIVISION

Forester	Vacant	
Assistant-Forester	A. Moulinié	Acted as Forester from May until the end of the year.
Senior Forest Ranger	E. Pool B.E.M.	
Forest Ranger	M. Delpech	On training in the United Kingdom
do	W. André	
do	A. Samson	
Forest Apprentice	P. de Lafontaine	
do	A. Dine	

APPENDIX E

The Agricultural Board consisted of the following members in 1961 :—

The Director of Agriculture — Chairman

Dr. the Honourable Mrs. M. H. Stevenson-Delhomme C.B.E.

The Honourable H. C. Gontier

Mr. R. Albert

Mr. D. Bailey O.B.E., J.P.

Mr. H. Dauban

Mr. R. Delpech

Mr. J. Dick

Mr. P. D'Offay

Mr. J. Hadee

Mr. M. Jumeau

Mr. W. MacGaw

Mr. P. Moulinié

Mr. E. Nageon de Lestang

Mr. J. S. J. Oliaji

Mr. J. B. Pool

Mr. K. St. Ange

APPENDIX F

The following legislation affecting agriculture was enacted in 1961 :—

- Ordinance No. 1 of 1961 : An ordinance to amend the Employment of Servants Ordinance.
- Ordinance No. 10 of 1961 : An ordinance to make Provision for the levy of land tax in Seychelles and further to amend the Income Tax Ordinance.
- Ordinance No. 13 of 1961 : An ordinance to amend the Sale of Produce Ordinance.
- Ordinance No. 18 of 1961 : An ordinance to clarify the titles of proprietors of land held under deeds of concession granted by the Crown and thereby to eliminate uncertainty regarding land tenure in Seychelles.
- Ordinance No. 19 of 1961 : An ordinance to provide for the control of slaughtering of cattle.
- Ordinance No. 20 of 1961 : An ordinance to amend the Copra Stabilization Ordinance.
- Ordinance No. 23 of 1961 : An ordinance to amend and consolidate the law relating to land reclamation and to provide for matters incidental thereto and connected therewith.
- Ordinance No. 28 of 1961 : An ordinance to amend the Sale of Produce Ordinance.
- Ordinance No. 37 of 1961 : An ordinance to provide for the protection of wild animals and birds.
- Ordinance No. 38 of 1961 : An ordinance to amend the Birds' Eggs Ordinance.

APPENDIX G

AGRICULTURAL PRODUCE FROM CROWN LANDS

(a) **Coconuts and Copra**

Coconut collection was as follows :—

<i>Origin</i>	<i>Number</i>
Grand'Anse	190,712
Anse Boileau	81,680
Foret Noire	89,421
Union Vale	53,705
Ste. Anne Island	242,011
Curieuse Island	168,572
Amitie Estate	399,508
Long Island	13,168
Minor Praslin Crown Lands	12,460
Minor Mahe Crown Lands	13,426
	1,264,663

Disposal of coconuts was as follows :—

Stock on 1.1.61	223,765	Converted into copra	273,898
Collection	1,264,663	Sales and free issues	1,138,001
		Bad nuts	17,179
		Stock on 31.12.61	59,350
	1,488,428		1,488,428

Copra production in Kilogrammes :—

Stock on 1.1.61	—	Consigned for export	40,035
Production	42,166	Stock by tender (2nd grade)	2,131
		Stock on 31.1.61	—
	42,166		42,166

(b) **Cinnamon Products**

Cinnamon leaf and bark sold by tender :—

Leaf	417,010 Kgs.
Green unscrapped bark	96,817 „
„ unscrapped bark	471,984 „
Cinnamon quills	443 „
Cinnamon quillings	235 „

(c) **Sugar cane and Bacca**

25,836 tons of sugar cane were supplied to the Victoria Bacca Club in 1961, while 4,550 bottles of bacca were supplied by the Bacca Club for sale on the Grand'Anse station.

(d) **Milk**

A total of 295,928 pints of milk were produced at the Union Vale dairy, 240,040 pints of which were supplied to Government institutions and were sold to customers ; the rest, 55,680 pints, were fed to young calves. Of the 66,392 pints of milk produced on the Grand'Anse station, 59,236 pints were fed to young stock while 7,156 pints were sold and or issued free of charge.

(e) **Vanilla**

A total of 191,930 green vanilla beans were sold by tender, consisting of 185,750 beans from the L'Amitie estate and 6,180 beans from other Crown Lands.

(f) **Citrus fruits**

A total of 18,306 citrus fruits, including oranges, king-oranges and grape-fruits were produced at the Souvenir nursery, out of which, 16,606 fruits were sold by tender and 1,700 fruits were supplied to Government institutions.

APPENDIX H

FORESTRY PRODUCE FROM CROWN LANDS

(Timber Running Feet)

<i>Timber Species</i>	<i>Planks</i>	<i>Madriers</i>	<i>Beams</i>	<i>Posts</i>	<i>Rondins</i>
Albizzia	26,118	54,681	1,149	—	—
Agati	760	792	—	—	—
Badamier	94	—	—	—	—
Breadfruit	164	—	—	—	—
Bois de Table	—	210	—	—	—
Bois Noir	144	420	—	—	—
Bois Rouge	83	—	—	707	—
Casuarina	—	—	415	127	—
Calice du Pape	1,276	1,929	—	—	—
Capucin	—	—	—	1,897	—
Eucalyptus	—	40	48	—	—
Lilac	1,867	—	—	—	—
Sangdragon	—	92	—	—	—
Santol	10,371	9,782	—	—	—
Takamaka	2,177	795	—	—	268
Teak	206	—	—	—	—

OTHER FOREST PRODUCE

Standing Trees	54 trees
Cord-wood from Crown Lands	478 cords
Cord-wood from forests	928 „
Fire-wood	2,700 packets
Gaulettes	920 units
Cedar rafters	22 „
Slabs	998 „
Capucin charcoal	800 tins
Latanier and other palm leaves	68,454 units
Bamboos	579 „
Coco-de-mer	1,684 nuts
Lattes	750 units
Raffia branche	419 „
Stake Poles	605 „
Xmas trees	10 „

Madriers are planks 2 inches thick

Rondins are round pieces of wood

Gaulettes are poles

Lattes are slats made out of the stem of the *Nephrosnerma* palm

APPENDIX I

PRINCIPAL WORKS BEARING ON THE AGRICULTURAL AND RELATED INDUSTRIES OF THE SEYCHELLES.

ANONYMOUS	<i>A Plan for Seychelles</i>	Seychelles Government, 1961.
BAILEY D.	<i>List of the Flowering Plants and Ferns of the Seychelles</i>	Seychelles, 1961.
COOKE F. C.	<i>Report on the Coconut Industry</i>	Seychelles Government, 1958.
DUPONT R.	<i>L'Archipel des Seychelles, Ses Ressources Naturelles, Sa Faunes Entomologique et son Evolution Economique</i>	Mauritius, 1938.
DUROCHER YVON F.	<i>The Coconut Industry of Seychelles</i>	World Crops, Vol. 5, 1953.
FAULKNER D. E.	<i>Report on the Development of Animal Husbandry and Balanced Farming in the Seychelles</i>	Seychelles Government, 1960.
HOLDWORTH-HAINES W.	<i>The Essential Oil Industry of Seychelles</i>	Bull. Imp. Ins., Vol. 30, 1934.
HORNELL J.	<i>Report on the Fisheries and Fish Resources of the Seychelles</i>	H. M. S. O. London, 1927.
"	<i>The Turtle Fisheries of the Seychelles Islands</i>	H. M. S. O. London, 1927.
LIONNET J. F. G.	<i>Rendzina Soils of Coastal Flats of Seychelles</i>	J. Soil Sci., Vol. 3, 1952.
"	<i>Seychelles Vanilla</i>	World Crops, Vol. 10, & 11, 1958 & 1959.
"	<i>A Review of the Biological Control of Agricultural Pests in the Seychelles</i>	E. Afr. Agri. J., Vol. 24, 1959.
"	<i>Seychelles Cinnamon</i>	World Crops, Vol. 13, 1961.
NYE I. W. B.	<i>The Control of the Coconut Pest Melittomma Insulare (Coleoptera, Lymexylidæ) in Seychelles</i>	Bull. Ent. Res., Vol. 52, 1961.
PETERS A. J.	<i>Bibliography of Published Works Bearing on the Natural History of the Seychelles and Neighbouring Archipelagos</i>	J. Sci. Bibl. Nat. Hist., Vol. 27, 1957.

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| PIGGOTT C. J. | <i>Problems of Coconut Production on Seychelles "Outer Islands"</i> | E. Afr. Agric. for J., Vol. 27, 1961. |
| | <i>Notes on some of the Seychelles Islands</i> | Atoll. Res. Bull. No. 83, Washington, 1961. |
| REED F. R. C. | <i>The Geology of the British Empire</i> | London, 1959. |
| RIDLEY M. W. & PERCY R. | <i>The Exploitation of Seabirds in Seychelles</i> | H. M. S. O. London, 1958. |
| ROWE F. J. | <i>The Economy of the Seychelles and its Future Development</i> | Seychelles Government, 1959. |
| SUMNER GIBSON H. | <i>A Report on the Forests of the Granitic Islands of the Seychelles</i> | Seychelles, 1938. |
| SWABEY C. | <i>Forestry in the Seychelles</i> | Seychelles, 1961. |
| THORP SIR J. | <i>Looking Forward.</i> (Three Broadcast talks by His Excellency the Governor) | Seychelles, 1959. |
| VESEY-FITZGERALD D. | <i>The Control of Coccidae on Coconuts in Seychelles</i> | Bull. Ent. Res., Vol. 31, 1940. |
| „ | <i>Review of Biological Control of Coccids on Coconuts Palms in the Seychelles</i> | Bull. Ent. Res., Vol. 44, 1953. |
| WEBB A. W. T. | <i>Population Census 1960</i> | Seychelles Government, 1961. |
| „ | <i>Agricultural Census 1960</i> (mimeographed) | Seychelles Government, 1960. |
| WHEELER J. F. G. & OMMANEY F. D. | <i>Report on the Mauritius — Seychelles Fisheries Survey, 1948 — 1949.</i> | H. M. S. O. London, 1953. |

APPENDIX J

LOCAL MEASURES AND CONVERSION TABLE

1 Arpent	1,043 acres
1 French foot	1.06 English Feet
1 Gaulette	10 French feet or 10.6 English feet
1 Metric Ton	1,000 kilogrammes
1 Long Ton	1,016 „
1 Kilogramme or Kilo	1,000 grams
1 English Pound	453.6 grams
1 French Pound	500 grams
1 Ell	4 English feet or 3.77 French feet
1 Hundredweight	50,803 kilogrammes
1 Corl	48 Cubic feet (French) or 50.08 cubic feet (English)
1 Litre	1,000 Cubic centimetres
1 Bottle	$\frac{2}{3}$ of a litre or 666.6 cubic centimetres
1 Chopine	$\frac{1}{3}$ of a litre or 333.3 cubic centimetres
1 Quart	$\frac{1}{2}$ of a chopine or 166.6 cubic centimetres
1 Gallon	4.546 litres
1 Touque	22 litres
1 Velte	$\frac{1}{3}$ of a touque or 7.333 litres
1 Rupee	1/6 sterling

